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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,174	02/06/2004	Paul Richard Granfors	141906XZ (15244US01)	7187

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Christopher R. Carroll
McAndrews, Held & Malloy, Ltd.
Suite 3400
500 West Madison Street
Chicago, IL 60661

EXAMINER	
BITAR, NANCY	

ART UNIT	PAPER NUMBER
2624	

MAIL DATE	DELIVERY MODE
09/11/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/774,174	GRANFORS ET AL.	
	Examiner	Art Unit	
	NANCY BITAR	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 June 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, with respect to the rejections of claims 1-22 under 35 U.S.C. 103 (a) have been fully considered and are persuasive therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Kump et al (US 2003/0169850) and Tumer et al (2004/0017224).

Examiner Notes

2. Examiner cites particular columns and line numbers in the references as applied to the claims below for the convenience of the applicant. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested that, in preparing responses, the applicant fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject

matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-22 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Kump et al (2003/0169850) in view of Turner et al (2004/0017224).

As to claim 1, Kump et al. teaches a method for detecting scintillator hysteresis artifacts in an image from an x-ray detector, said method including: examining an image from an x-ray detector to measure a first signal level for a first area of interest and a second signal level for a second area of interest , wherein said first area of interest includes a first image area (figure 4, 406, paragraph [0034]) and said second area includes a second image area(figure 4, 412, paragraph [0034-0035]), note that resolution of said first image data set is different than a resolution of said second image data set); determining a difference in said first signal level and said second signal level(By subtracting the "dark" scan from the actual "exposed" scan of the desired object, the charge retention effects on the second image data set of step 406 may be eliminated, paragraph [0039-0040]) ; and comparing said difference to a threshold to detect a shape artifact from a prior image due to scintillator hysteresis (the desired x-ray level (typically by the operator), which is translated into an integrated voltage threshold through a calibrated transfer function. During operation, the integrator circuit is reset, x-rays are enabled, and the x-ray level integrated until its threshold is reached, at which time, the controlling signal terminates the x-ray, Paragraph [0041]; note that the causes of these artifacts include lag, gain hystereresis, and timing mode changes. These artifacts may appear in any of the x-ray images or offset images, paragraph [00017]). While Kump et al meets a number of the limitations of the claimed invention, as pointed out more fully above, Kump fails to specifically teach how the threshold is being compared

Specifically, Tumer et al. teaches the use of threshold DAC18 where the threshold of comparator 15 is adjusted through threshold DAC 18. The threshold DAC 18 is set by the external control computer through the configuration control logic in order to allow accurate and uniform threshold setting throughout the detector. it would have been obvious to one of ordinary skill in the art to compare the difference of the signals levels to a threshold in Kump system 100 in order minimize artifacts ad total exam time between acquisitions by using high resolution imaging solid state sensors. Therefore, the claimed invention would have been obvious to one of ordinary skill in the art at the time of the invention by applicant.

As to claim 2, Kump et al. teaches the method of claim 1, further including exposing said x-ray detector with a flat field x-ray exposure to produce said image (Each cell 210 comprises a photodiode 320 and a Field Effect Transistor (FET) 330. Data lines 340 connect the cells 210 to the read-out electronics 145 of the image acquisition module 140. Through the readout electronics 145, the image acquisition unit 140 acquires an x-ray image from the x-ray detector scan area 115, paragraph [0031]).

As to claim 3, Kump et al. teaches the method of claim 1, wherein said first image area differs from said second image area (resolution of said first image data set is different than a resolution of said second image data set, claim 14).

As to claim 4, Kump et al. teaches the method of claim 1, wherein said detector includes a plurality of pixels, said plurality of pixels comprising a first set of pixels and a second set of pixels, wherein said first set of pixels are examined to measure a first set of pixel signals and said second set of pixels are examined to measure a second set of pixel signals, wherein said first signal level includes said first set of pixel image signals and said second signal level includes

said second set of pixel image signals (The x-ray detector scan area 115 is comprised of cells 210 corresponding to pixels in an x-ray image, paragraph [0030], One or more cells 210 are uniquely mapped to one or more pixels in an x-ray image. The pixels are activated to produce the desired digital x-ray image of the patient 130, figure 2).

As to claim 5, Kump et al. teaches the method of claim 4, wherein said first set of pixels includes a first plurality of photodiodes, said first plurality of photodiodes measuring said first set of pixel signals and said second set of pixels includes a second plurality of photodiodes, said second plurality of photodiodes measuring said second set of pixel signals (Each cell 210 comprises a photodiode 320 and a Field Effect Transistor (FET) 330. Data lines 340 connect the cells 210 to the read-out electronics 145 of the image acquisition module 140, paragraph [0031-0032], note that The energy discharged by the photodiodes in the detector and converted by the read-out electronics is used by an acquisition system to activate pixels in the displayed digital diagnostic image.)

As to claim 6, Kump et al. teaches the method of claim 5, wherein said first set of pixel signals is measured by determining an amount of electrical charge discharged in said first plurality of photodiodes and said second set of pixel signals is determined by measuring an amount of electrical charge discharged in said second plurality of photodiodes (The FET controller allows signals discharged from the panel of photodiodes to be read in an orderly fashion. The readout electronics convert the signals discharged from photodiodes. The energy discharged by the photodiodes in the detector and converted by the read-out electronics is used by an acquisition system to activate pixels in the displayed digital diagnostic image. The panel of

FETs and photodiodes is typically scanned by row. The corresponding pixels in the digital diagnostic image are typically activated in rows, paragraph [0005-0007]

As to claim 7, Tumer et al. teaches the method of claim 4, wherein said threshold is a percentage of an average of a plurality of standard deviations of said first set of pixel image signals and said second set of pixel image signals (figure 6).

As to claims 8 -10, Kump et al. teaches the method of claim 1, further including: automatically irradiating said detector (fan beam 23) with an x-ray flux when said difference is greater than said threshold, wherein said x-ray flux is equivalent or greater to said flat field x-ray exposure (system 100 employing automatic exposure control (AEC). A system with AEC utilizes an x-ray sensitive ion chamber coupled with integrating electronics and a feedback control signal to control the x-ray source 120. The setup of the AEC includes setting the desired x-ray level (typically by the operator), which is translated into an integrated voltage threshold through a calibrated transfer function. During operation, the integrator circuit is reset, x-rays are enabled, and the x-ray level integrated until its threshold is reached, at which time, the controlling signal terminates the x-ray. During this operation the actual exposure time is not known apriori. The digital detector and its offset are sensitive to the time between frames. Thus, in the embodiment of FIG. 4, the consistency of the timing between the x-ray acquisition and the offset acquisition is maintained, paragraph [0041], figure 4).

Claims 12-22 differ from claims 1-11 only in that claims 1-11 are method claims whereas, claims 12-22 are an apparatus claim. Thus, claims 12-22 are analyzed as previously discussed with respect to claims 1-11 above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NANCY BITAR whose telephone number is (571)270-1041. The examiner can normally be reached on Mon-Fri (7:30a.m. to 5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jinge Wu can be reached on 571-272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nancy Bitar 9/1/2008
/Samir A. Ahmed/
Supervisory Patent Examiner, Art Unit 2624